Wood Flooring Over Radiant Slabs

by Henry Spies

Q. *What is the best type of wood flooring to install over a radiant slab?*

A. Wood parquet tiles can be installed over a radiant slab with reasonable success. They are relatively thin, and can be bedded in solid mastic adhesive. This provides good heat conduction, and prefinished parquet tiles are usually well dried, so shrinkage is minimized.

Floating hardwood flooring, which is installed over a foam pad, also might work. However, the more insulating material you install on the radiant slab, the higher the temperature of the slab needs to be. I have seen problems where the higher water temperature needed to compensate for thicker wood flooring or carpeting has made the floors uncomfortably warm. To avoid this, slab areas with different floor coverings should be on separate zones, with different water temperatures.

Shingle Differences

Q. *What is the difference between organic and fiberglass shingles?*

A. The differences between organic and fiberglass shingles are considerable and affect the quality rating of each material.

Organic shingles are composed of five components. The mat is made from wood fibers and recycled paper. This mat is saturated with a special *saturant-grade asphalt*. It is then coated on both sides with a harder, stabilized *coating asphalt*. A *surfacing* of mineral granules, usually ceramic-coated crushed rock, is added to protect the asphalt from the ultraviolet rays of the sun and to provide a decorative surface. Finally, a *backcoating* of particulate material, usually sand, slag, talc, or limestone, is added to keep the shingles from sticking together and from staining during storage.

Fiberglass shingles use only the coating-grade asphalt, which saturates a fiberglass mat and holds the surfacing. The granules and the backcoating are the same as for organic shingles.

In the past, when all asphalt shingles were organic, the quality of a particular shingle was judged by its weight and the length of its warranty. This is no longer considered an accurate basis. There are considerable differences in both the quality of the asphalt coating and the weight of the mats for both organic and fiberglass. Some tests have shown that a mid-weight shingle with a strong mat is more durable than a heavy shingle with a weak mat.

Despite warranty claims ranging from 15 to 25 years, there is evidence of premature failures of both types of shingles. The best assurance of quality is tear resistance. Minimally, roofers and builders should look for compliance with the ASTM Standard D3462 for fiberglass shingles, which calls for a minimum tear strength of 1,700 grams, using an Elmendorf Tear Tester. There is no standard for organic shingles, but most will exceed 2,000 grams of tear resistance.

Insulating Old Plaster Walls

Q. *What is the best way to insulate and vapor-proof an existing plaster wall without demolishing the surface?*

A. It is possible to insulate an existing wall with one of the blown-in insulation materials, such as cellulose, rock wool, or blowing-grade fiberglass. The wall cavities should be blown tightly to prevent settling.

An existing wall cannot be made totally vapor-proof, but with enough paint you can prevent any damage from moisture diffusion if indoor humidity levels are kept to reasonably low levels (no condensation on double-glazed windows). Most plaster walls are old enough to have been painted with two or more coats of an oil-based paint. If not, then two coats of oil-based paint should be applied. An enamel is best, even a satin-finish one.

The most important step is to seal all openings on the warm side as tightly as possible. This means applying foam sealant around all outlets and other penetrations of the inside surface. Seal the bottom of the wall where it meets the floor, either with a thin bead of caulk or construction tape.

The outside of the wall should not be vapor sealed. The vapor permeability of the outside finish should be at least five times greater than the interior finish. A housewrap, such as Tyvek or #15 felt, which will slow incoming air, will not trap moisture. ■

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